

ing the ends of the segments, on 3 to 7, sometimes on base of 8; membrane at base of 9 and 10 yellow; sides of 1 yellow, and of 2, except behind the ears and on posterior margin; yellow on base of 3; sometimes on 4 to 7 a basal spot, and sometimes an apical one on 7; sides of 8 mostly yellow, with a projection above; border of 9 yellow, and lower apical portion of 10; 10 about one-half as long as 9; appendages black; superior pair longer than 10, divaricate, acute at tip, at half their length on inner side below is a large sharp pointed tooth; inferior pair but little shorter, and with the branches more widely divaricate, than the superior pair, upturned at tip. In the ♀, the dorsal stripe on 1 and 2 is much broader and the sides of 1 and 2 wholly yellow; on the sides of 3 to 7 is a long yellowish mark with its tip turned down, on most of the segments the basal portion of this mark is separated from the rest; sides of 8 yellow, with projections upward; sides of 9 and 10 yellow, and a narrow median stripe above on 10; superior appendages black, rest yellowish; vulvar lamina black, one-third as long as 9, apical half bifid and divaricate, the tips acute.

Described from six males and two females, collected at Ithaca, N. Y., and sent me by Mr. MacGillivray; May 21, 1890; May 15, 1894; May 18, 1895.

A SHORT REVIEW OF THE CHRYSOMELAS OF NORTH AMERICA.

BY MARTIN L. LINELL.

The following attempt at a synopsis of the species entered in our check-list under the generic names of *Doryphora* and *Chrysomela*, is based principally upon the material in the U. S. National Museum, but I am also greatly indebted to Messrs. Schwarz and Hubbard and Mr. H. Ulke for access to their extensive collections as well as for valuable information.

The genera may be separated as follows:

Last joint of palpi short, truncate.

Mesosternum prominent, tuberculiform between the coxæ. Anterior femora of male strongly toothed. **Labidomera** Chevrolat.

Mesosternum not surpassing the level of prosternum. Femora simple.

Leptinotarsa Stål.

Last joint of palpi not shorter than penultimate.

Claws parallel, connate at base **Zygogramma** Chevrolat.

Claws divergent.

Sides of thorax not incrassate. Elytra with darker markings limited by impressed punctures. **Calligrapha** Erichson.

Sides of thorax incrassate. Elytra not maculate. . . . **Chrysomela** Linné.

Genus **Labidomera** Chevrolat.

Contains only *L. clivicollis* Kirby, and its variety *L. rogersii*

Leconte. It is dark blue, elytra reddish yellow with typically a common large cruciform post-scutellar spot, an elongate triangular humeral spot and a V-shaped subapical. The humeral and scutellar spots are often confluent, forming a broad transverse band. The variety has the spots broken up into smaller ones and occurs principally in Texas and Kansas.

Genus *Leptinotarsa* Stål.

Elytra unicolorous.

Reddish yellow; antennæ, palpi, legs and scutellum black; elytra punctate in subgeminate striæ. (Tex., N. Mex., Ariz., Mex.)

L. rubiginosa Rogers.

Dark cupreous green, very large; elytra densely confusedly punctate; intervals aciculate. (Southern Calif., Mex.) *L. behrensi* Harold.

Black; elytra green or blue, finely irregularly punctate. (Tex., Ariz., Mex.)

L. haldemani Rogers.

Elytra vittate.

Thorax immaculate.

Æneous; elytra yellow, irregularly bigeminately punctate, with four interrupted æneous vittæ. (Tex., Ariz., Mex.) . . . *L. lineolata* Stål.

Æneous black; ventral surface and legs pale; elytra regularly striate with a narrow dorsal and a marginal vitta yellow. (Tex., Mex.)

L. dahlbomi Stål.

Rufescent; elytra pale, with suture, two discal vittæ and margin piceous. (Lower Cal., Ariz. Collection Ulke.) . . . *L. peninsularis* Horn.

Black; elytra pale, regularly striate, each with four dark vittæ. (N. Mex., Mex.) *L. melanthorax* Stål.

Thorax maculate.

Ventral surface and legs entirely black.

Elytra with suture, five vittæ and epipleura black; striæ of confused punctures. (Southern Calif., Mex.) *L. undecimlineata* Stål.

Ventral surface and legs yellow, maculate with black.

Elytral striæ of confused punctures; suture and five vittæ black.

Epipleura pale *L. decemlineata* Say.

Epipleura black towards apex (Agua Negra, Tex., Mex.)

L. multitaeniata Stål.

Elytral striæ regular, punctures in single rows; epipleura pale.

Elytra each with five vittæ, third and fourth approximate, often united. (Southern States west to Kansas.)

L. juncta Germar.

Elytra each with four vittæ, more or less abbreviated, third and fourth not approximate. (Brownsville, Tex., Mex.)

L. defecta Stål.

Genus *Zygotogramma* Chevrolat.

Thorax brown with anterior angles pale; intervals of elytra punctate.

Oval, brown; elytra pale, with the epipleura, suture and four vittæ black or brown, the first vitta free; the second interrupted near apex, leaving a

free spot; the fourth strongly abbreviated, with a free spot at the middle of the sides. (Southern States to Mont. and Ariz.)

Z. exclamatio *Fabricius*.

Oval, brown, smaller; elytra pale, with sutural and subsutural vittæ confluent, the second and third joining at two-thirds the length, a free spot near apex and a very short fourth vitta behind the humerus; epipleura pale. (Kans., Neb., Mont., Dak.) **Z. conjuncta** Rogers.

Like previous form but generally paler in color and the elytral vittæ broken up into spots. (Kans., Dak., Mont.) **Z. var pallida** Bland.

Oval, brown, of medium size; elytra pale with brown vittæ, the subsutural united with the sutural; two broad discal vittæ generally connected near apex the fourth vitta entirely wanting; epipleura and the margin posteriorly brown. (Ariz., N. Mex., Colo., Utah) **Z. continua** *Leconte*.
(syn. *fasciatipennis* JACOBY.)

Thorax unicolorous, brown or æneous.

Globosely oval, brown, slightly bronzed; elytra pale with dark vittæ; subsutural united with sutural, two confluent discal vittæ, no isolated spots. epipleura pale with dark margins. (East of Rocky Mts.)

Z. suturalis *Fabricius*.

Like previous form, but the subsutural and discal vittæ free, var. **casta** *Rogers*.*

Globosely oval, brown, slightly bronzed; elytra pale with narrow vittæ; the subsutural free, slightly abbreviated; the second and third sinuous, abbreviated and united at two-thirds the length; the fourth very short, confluent at base with the third; two or three isolated spots posteriorly; epipleura pale with brown margins. (Tex., Kans., Ariz.)

Z. disrupta *Rogers*.

Like previous form, but smaller and still more globose; the second vitta twice interrupted, the fourth represented by a spot only. (Tex., Col.)

Z. heterotheca sp. nov.*

Oval, dark æneous; elytra pale with a sinuous vitta extending from the humerus to near the suture one-fourth from apex, thickened at middle, hooklike at apex and with a short humeral stripe attached to its base; an oval spot near the scutellum and three smaller ones posteriorly near the lateral margin; sutural vitta striatopunctate, trifid at base; epipleura and margin pale. (Tex.; Southern Ariz., Mex.) **Z. malvæ** *Stål*.

Oval, ferruginous; elytra yellow with markings as in *Z. malvæ*, but subsutural vitta free for at least half the length and the epipleura margined with brown. (Ariz., N. Mex.) **Z. tortuosa** *Rogers*

Oval, brown, more or less bronzed; elytra pale with a broad sutural vitta, ramified before and behind the middle, a broad arcuate band from the

* *Chrysomela festiva* FABRICIUS. "Nigroænea, elytris lineis tribus suturaque antica flavis. Statura *C. fastuosæ* at duplo minor. Habitat America." Suffrian suggests that this may be identical with *casta* Rogers, but I can not see that the description fits this or any other North American species.

† Mr. E. A. Schwarz informs me that he collected this species in abundance at Columbus, Texas, feeding on the leaves of the Composite plant, *Heterotheca scabra*:

humerus to behind the middle, a small round spot on the side of the disc and another one near apex; epipleura and an elongate marginal spot just behind the middle also dark. (Southern Ariz.) **Z. opifera** Stål.

Elongate oval, feebly convex, brown, slightly bronzed; elytra pale with a broad sutural vitta, epipleura and spots æneous; two larger basal spots, the exterior one emarginate behind, a small spot at the suture before middle, a larger one, strongly arcuate, behind the middle and many smaller ones posteriorly. (Tex., N. Mex., Ariz.) **Z. piceicollis** Stål.

Elongate oval, feebly convex, greenish black. Elytra pale; epipleura, a broad sutural vitta, twice ramified posteriorly, an oblique humeral vitta, connected with the sutural band at middle, an oval spot between humerus and scutellum, four or five discal spots on posterior half and the lateral margin behind the middle, æneous. (Mex., Ariz. Collection Ulke.)

Z. signatipennis Stål.

Genus *Calligrapha* Erichson.

Elytra vittate.

Thorax uniformly brown. Epipleura dark.

Oval, ferruginous. Last joint of palpi strongly dilated. Sides of thorax coarsely punctate. Elytra yellow with broad sutural and discoidal ferruginous bands; the latter longitudinally more or less divided by yellow. (East of Rocky Mts.) **C. lunata** Fabricius.

Oval, convex, brown, slightly bronzed. Elytra pale with a broad sutural and dorsal vitta bronzed, the latter angularly incised at middle exteriorly. (East of Rocky Mts.) **C. similis** Rogers.

Like the preceding but globosely oval, with the sutural vitta truncate at base and dilated at apical third and the discal vitta abbreviated posteriorly. (Kans., Neb.) **C. incisa** Rogers.

Regularly oval, convex, brown. Elytra pale; an entire sutural and two discal vittæ of subequal width and parallel, brown; the inner discal vitta somewhat shorter. (Capron, Fla.) . . **C. cephalanthi** Schwarz.

Thorax brown with apical and lateral margin pale. Epipleura pale.

Oval, convex, dark brown. Elytra pale with sutural and one discal vitta brown, the latter abbreviated behind. (Kans., Neb.)

C. præcelsis Rogers.

Thorax pale with dark discal mark. Epipleura pale. Elongate oval, less convex, æneous black.

Elytra pale with sutural and one discal vitta black; the latter more or less sinuate exteriorly. (Atl. to Pac States.) . . . **C. elegans** Olivier.

As the preceding, but the discal vitta of elytra obliquely divided behind middle. (Los Angeles Co., Cal.) . . . var. **californica**, subsp. nov.

Elytra irregularly maculate.

Epipleura of prothorax not impressed.

Legs red, epipleura of elytra pale.*

* I have seen only a single specimen of *C. scalaris* (from Bethlehem, Pa.), with æneous epipleura.

Thorax entirely green.

Oval, green. Elytra pale with a broad, three or four times ramified sutural vitta; a larger curvate humeral and many smaller spots, one of which is placed close to lateral margin at middle. (East to Neb. and Tex.)

C. scalaris *Leconte*.

Like preceding but elytral markings narrow and subsutural stripe free. (Eastern States to Neb.) . . . **C. philadelphica** *Linné*.

Markings broader, especially the humeral stripe. . var. **spireæ** *Say*.

Thorax pale, at least in part, lateral margin of elytra unspotted.

Oval ferruginous. Thorax pale with ferruginous spots. Elytra with numerous small black spots. (Mo. to Wash.)

C. multipunctata *Say*.

Oval, green. Thorax green or brown with pale apical and lateral margins. Elytra pale with slender sutural and subsutural lines and numerous small spots, green. (Eastern States to Ore.) **C. bigsbyana** *Kirby*.

Legs and epipleura black.

Oval, convex, greenish black. Elytra with heavy black markings connected, and enclosing angular pale spots. (Canada.)

C. pnirsa *Stål*.

Epipleura of prothorax canaliculate.

Epipleura of elytra pale.

Oval, convex, bluish black. Elytra pale with narrow black markings; sutural, subsutural and two parallel sinuous stripes from the humeral region to beyond middle, the exterior one connected with a humeral spot; several smaller spots posteriorly. (El Paso, Tex., Ariz., N. Mex., Mex.) **C. dislocata** *Rogers*.

Like the preceding but the markings of elytra much broader and the subsutural confluent with the sutural stripe. (Pac. States to Neb.) **C. sigmoidea** *Leconte*.

Epipleura of elytra black.

Legs red.

Elongate oval, bluish black. Elytra pale with strong black markings; a sutural vitta trifid in front; a long stripe from the humerus arcuate towards suture before the middle, abruptly parallel with suture to behind middle and again arcuately bent and reflexed towards the margin; an oval spot between the humerus and scutellum, a V-shaped one at apex and several on the sides of the disc; also a marginal spot at middle. (Ariz., N. Mex.) **C. serpentina** *Rogers*.

Legs black.

Very small, globosely oval, black. Elytra with a broad black sutural vitta, abbreviated at base, and with about 9 large pale spots surrounded by black rings; a small marginal spot at middle. Kans. (Collection Ulke), Mex.

C. multiguttata *Stål*.

Size, form and elytral markings resembling *C. scalaris*, Leconte but lateral margin unspotted. (Mex.) (Ariz., *vide* Crotch.)..... **C. sylvia** Stål.*

Genus **Chrysomela** Linné.

Marginal groove of thorax not reaching to apex.

Ovate, green or blue, apterous. Elytra sulcate, finely punctate in regular striae. (Alaska)..... **C. subsulcata** Mannerheim.

Oblong, black, winged; elytra margined with fulvous, intervals irregularly punctate. (Colo., Kans., Neb., Dak.) **C. flavomarginata** Say.

Like preceding but without yellow elytral margin. (Col. to Ore.)
C. basilaris Say.

Marginal groove of thorax entire.

Oval, convex, winged, violaceous; elytra golden green or purple, more or less irregularly striato-punctate. (Tex. to Neb.)..... **C. auripennis** Say.

Like preceding but entirely bluish black. (Tex., Idaho, Cal.)
C. inornata Rogers.

Oval, bluish black, apterous. Lateral margin of thorax more incrassate and strongly rounded. (Rocky Mts.)..... **C. montevagans** Leconte.

Globosely oval, æneous black, subopaque, winged. Elytra finely alutaceous between the punctures. (N. Y. to Fla., Tex. and Mo.)
C. subopaca Rogers.

THE DOG'S HEAD BUTTERFLY ON STATEN ISLAND.

By W. T. DAVIS.

In the "Canadian Entomologist" for last July and August the fact is recorded that *Colias cæsonia*, the Dog's Head butterfly, had been taken last June near Toronto and in Southern Manitoba. This southern butterfly has never been recorded from the vicinity of New York City and its name does not occur in any of the local lists. Its appearance during the past summer on parts of Staten Island is, therefore, of considerable interest. A single specimen was taken in June at Eltingville by Capt. Robert D. Wainwright, and on July 11th the writer saw quite a number flying across a sandy, over-grown field near Rossville. There was a strong wind blowing and very few of the butterflies tarried on the *Asclepias* flowers. The next day there was less wind and several were captured, though they were not so common as on the 11th. By the 25th of July they had ceased flying. It may be of interest to add that *Thecla titus* was common this year on the flowers of *Asclepias tuberosa* in certain sandy portions of the island.

*From Crotch's remarks (Proc. Ac. Nat. Sci. Phila., XXV, p. 50). I suspect that he has wrongly identified this species and that the *C. sylvia* of Stål does not belong to our fauna.